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Graduate School of Chemical and Molecular Sciences Zurich (CMSZH)

Roland K. O. Sigel* and Ferdinand Wild*

Abstract: The Graduate School of Chemical and Molecular Sciences of the University of Zurich is a joint initiative of the 'Fachbereich' for Chemistry and Biochemistry. Oriented internationally, the Graduate School seeks to attract to Zurich talented prospective PhD students hailing from Switzerland, Europe and all corners of the world interested in a research career in chemistry and other molecular sciences such as soft-matter physics and molecular biology.

Keywords: Graduate School of Chemistry and Molecular Science UZH

The Graduate School of Chemical and Molecular Sciences of the University of Zurich commenced in 2007 as a joint initiative of the 'Fachbereich' for Chemistry and Biochemistry. This interdisciplinary initiative spans chemistry and other molecular sciences like soft-matter physics and molecular biology. It provides a platform for an elite chemistry-centric curriculum encompassing research, teaching and career skills. Oriented internationally, the Graduate School seeks to attract to Zurich talented prospective PhD students hailing from Switzerland, Europe and all corners of the world. Building on 175 years of path-forging chemical research and teaching in Zurich, the CMSZH Graduate School offers a special environment of state-of-the-art infrastructure and topflight research programs to students committed to

a rigorous study of chemistry and related molecular sciences.

The requirement for acceptance into the School is an excellent academic record in an appropriate field of basic science. Demonstrated scientific merit in research is a paramount criterion. The goal of the School is to guide and instruct students towards becoming members of a selected circle of the best young scientists and to help them thrive and recognize their potential. The School not only cares about preparing each of its students for his or her scientific career, but also looks to establish very good personal relationships and networking amongst all of its current, former, and future students.

Thanks to a program that spans the chemical and molecular sciences, a wide and interesting catalogue of scientific foci is offered. The molecular aspects of chemistry, biology and physics are well represented in classical as well as interdisciplinary forms. The central nature of the molecular hypothesis to medical, life and physical sciences places the CMSZH Graduate School at the frontier of the most exciting problems of modern science. From design to synthesis to analysis, all investigative interests have a home. A listing of topics includes fields such as: molecular medicine; structural and chemical biology; natural products; target and method oriented chemical synthesis; catalysis; coordination chemistry; solid-state and materials chemistry; nanotechnology; single molecule and ultrafast dynamic spectroscopy; computational methods and *ab initio* electronic structure determination. From the most fundamental factors of polyatomic molecules to complex molecular synthesis, protein engineering and/or macromolecular structure elucidation, students benefit from exposure to an environment

rich with expertise in many theoretical and experimental disciplines.

Applying for Admission to the CMSZH Graduate School

Interested candidates must have completed, or nearly completed, their Master's degree in a natural science or related discipline and have an excellent academic record. Application requires submission of a *Curriculum Vitae*, university transcripts and, if available, a list of scientific publications. In addition, a clear statement on the fields of interest is expected. The most promising candidates are invited to participate in a scientific colloquium at the University of Zurich. Here they have the opportunity to present the results of their Master's thesis to the audience and to discuss their work with all of the other participants. An interview is conducted and discussions are held with the academic staff leading the research groups of interest to each candidate. During this assessment, candidates and potential advisors become acquainted with each other in order to start a fruitful liaison. The personal commitment associated with pursuing a PhD and creating an independent research dissertation takes up to four years. Ideally, the culmination of this quest is reached through very good scientific collaboration and a strong interpersonal interaction with one's mentor as well as the other members of the group and the Graduate School.

Achieving admission to the Graduate School recognizes the applicant as having the high scientific standard necessary to pass this selection process, which strictly assesses the academic qualifications and scientific skills of each applicant. Admitted

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Prof. Roland Sigel (top right) together with applicants to the CMSZH Graduate School during the 1st Symposium on Chemical and Molecular Sciences held on October 31, 2007, at the University of Zurich (Irchel Campus).



A graduate student of CMSZH at work on the 700 MHz NMR spectrometer equipped with a cryoprobe, being one of the five high field spectrometers at the Institutes of Chemistry.

students are expected to complete their studies and submit their PhD thesis within four years. A thesis committee of the student's mentor and other faculty members follows the progress of the student throughout the duration of the program.

Belonging to the CMSZH Graduate School

Joining the Graduate School offers many benefits to a PhD student over simply just applying directly to and then joining a research group. A second supervisor and thesis committee provides a high level of mentoring of the student. Complementary aspects of the work can be discussed thoroughly with experts from neighbouring fields. In addition, participation in specialized courses or workshops, preferably at other universities, is strongly encouraged and sometimes even mandatory.

Even more benefits are offered. Students in the Graduate School profit from general courses like training in scientific writing or public speaking. Such courses facilitate the writing of publications, the final thesis or the presentation of results in the form of oral contributions at conferences, and prepare the student for writing future grant and research proposals.

As a very special activity, so-called retreats are held on a regular basis. These are short seminars that combine science, sports and leisure into a unique event. These retreats are open to all current members and alumni of the Graduate School. The seclusion offered by a mountain resort in Switzerland stimulates fruitful scientific dis-

cussions amongst different generations of PhD students. In addition, it is also a good place to have some personal networking on career and job opportunities, where former students, in particular, might offer valuable advice to their younger colleagues. After successful completion of the PhD exam, the members will enter into the Graduate School's alumni organization with the goal to form a lifelong network.

The CMSZH Graduate School opened its doors in fall 2007 with the first round of applications, selecting the first 18 students to enter the program. Deadlines to apply are twice a year, in early spring and fall, and we are looking forward to receive many applications from Zurich, Switzerland, Europe, and from all over the world.

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The Graduate School of Chemical and Molecular Sciences at the University of Zurich offers study towards the PhD degree in fields covering a broad spectrum of Chemistry, Biochemistry, and Solid State Materials with the following areas of specialization:

- Biophysics and Biological Chemistry
- Computational and Theoretical Chemistry
- Coordination and Analytical Chemistry
- Medicinal Chemistry and Radiochemistry
- Molecular Biology and Biochemistry
- Organic and Organometallic Chemistry
- Solid-State Chemistry and Nanosciences
- Spectroscopy
- Structural Biology

At present, the following academic group leaders are part of the CMSZH Graduate School offering research projects in the above-mentioned areas:

Roger Alberto, Kim Baldrige, Heinz Berke, Stefan Bienz, Dominik Brühwiler, Reto Dorta, Raimund Dutzler, Nathaniel Finney, Christian Frech, Eva Freisinger, Julia Fritz-Steuber, Peter Hamm, Jan Helbing, Jürg Hutter, Anthony Linden, Nathan Luedtke, Cristina Nevado, Greta Patzke, Andreas Plückthun, John Robinson, Ben Schuler, Jay Siegel, Roland Sigel, Bernhard Spingler, Felix Zelder, Oliver Zerbe

Deadlines to apply to the CMSZH Graduate School are twice a year, in early spring and fall. For more information please visit our website at www.cmszh.uzh.ch